# Top risks in shipping industry

November 2025


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# Executive summary

Shipping is being impacted by risks of growing volatility and uncertainties from war and geopolitical events, climate change risks and economic instability. However, inherent industry challenges due to decarbonization mandates, cyber threat and talent gaps are likely to persist over the long-term .

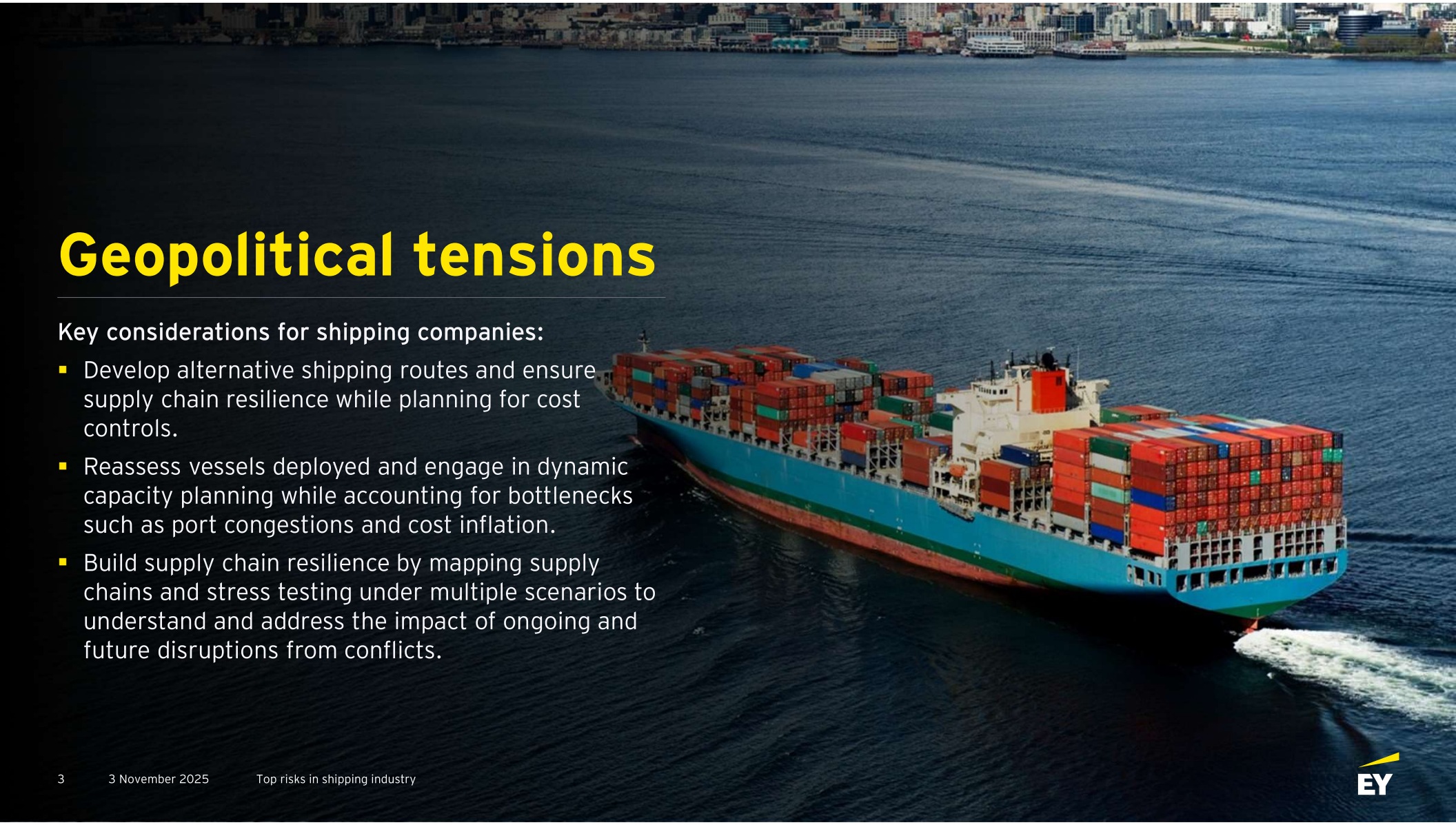
## Matrix of top shipping risks and their impact intensity and horizon


Note: Chart based on rating provided by EY Insights analysis

# Geopolitical tensions

**Key considerations for shipping companies:**

- Develop alternative shipping routes and ensure supply chain resilience while planning for cost controls.
- Reassess vessels deployed and engage in dynamic capacity planning while accounting for bottlenecks such as port congestions and cost inflation.
- Build supply chain resilience by mapping supply chains and stress testing under multiple scenarios to understand and address the impact of ongoing and future disruptions from conflicts.



# Geopolitical conflicts disrupt shipping routes, trigger shadow fleets, and raise safety and environmental concerns

## Factors or issues resulting from geopolitical conflicts

### Rerouting and longer transit times

- One of the most direct effects of geopolitical conflict is the risk of military actions that disrupt the safe passage of vessels. Key maritime chokepoints like the Strait of Hormuz, the Suez Canal and the Strait of Malacca, which handle a significant portion of global trade, are often at the center of geopolitical disputes.
- With ongoing geopolitical volatility in the Middle East, many ship operators have rerouted vessels around the Cape of Good Hope, adding time and cost to transits between Asia and Europe. The quality and safety of vessels may also be impacted because of this rerouting.
- Longer voyages around Africa expose vessels to harsh weather near the Cape of Good Hope, with limited access to salvage or repair, increasing the risk of severe claims from minor incidents.

**#1**

Ranking of geopolitical issues as the biggest issue for the shipping industry during 2025–26 as per Lloyd's List Outlook Survey 2025

**37%**

Share of respondents in the Lloyd's List Outlook Survey 2025 believing the Red Sea will not fully open to shipping until 2026

**US$1m**

Estimated additional cost for transit between China and Europe due to rerouting around the Cape of Good Hope to avoid the Middle East conflict region

### Emergence of shadow fleets

- Shadow fleets have emerged as a strategic means for nations looking to evade international sanctions, enabling restricted nations to maintain trade flows and thereby undermining coordinated enforcement efforts.
- Following sanctions imposed over its invasion of Ukraine, Russia assembled a covert network of oil tankers to sustain its energy exports – many of which are aging, poorly maintained and underinsured – posing significant risks from fires, collision and spills.
- In addition to physical risks, these vessels are inadequately maintained and staffed with underqualified crews, posing a threat to seabed infrastructure.
- The Baltic and North Sea are most vulnerable to shadow fleets, which host dense subsea infrastructure susceptible to degraded vessels.

**17%**

Estimated share of the world tanker fleet belonging to the shadow fleet – close to 600 tankers trading Russian oil alone

**72%**

Share of Russia shadow vessels that are more than 15 years old, exponentially increasing the risk of malfunctions and oil spills at sea

**70%**

Share of shadow fleet in seaborn oil exports of Russia (89% shadow fleet for crude oil exports), a key element in its strategy to shield energy trade from sanctions tied to the Ukraine war.

# Risks associated with geopolitical issues for a shipping company

Geopolitical conflicts intensify piracy risks, drive up security and insurance costs, disrupt trade routes, increase compliance burdens, and impact oil prices – leading to higher operational expenses, longer transit times, and elevated environmental and cargo risks.

**Risk to safety:**
- Countries experiencing geopolitical tensions are more vulnerable to piracy, necessitating heightened maritime security.
- Naval presence and additional security checks increase operational costs and cause delays for shippers.

**Risk to operations from route disruption:**
- Due to disruptions on some routes, shipments must take longer detours to protect them from damage. These longer detours can increase shipping costs and delay cargo delivery.
- The Russia-Ukraine conflict has significantly affected maritime routes in the Black Sea, leading to detours and increased transit times.

**Risk of environmental hazard:**
- With shadow fleets operating on aging vessels, the high risk of malfunction exposes companies to oil spills at sea.
- Absence of adequate P&I insurance heightens the risk of significant damages from fuel spills, as the lack of readily available funds may impede effective spill containment and increase contamination risk to coastal ecosystems.


**Risk from increased cost:**
- Rising geopolitical conflicts heighten risks in key shipping routes, driving up cargo insurance premiums.
- Detours and increased transit times not only delay shipments but also increase fuel consumption and operational costs.
- Added protection in conflict zones drives up security overheads for shipping companies.
- The rise in cyber breaches by state-backed hackers challenges national security.

**Risk to operations from route disruption:**
- Due to disruptions on some routes, shipments must take longer detours to protect them from damage. These longer detours can increase shipping costs and delay cargo delivery.
- Middle East conflict has decreased traffic through Red Sea which has contributed to longer transit time and higher cost of operations

**Risk of oil price volatility:**
- Middle East tensions threatened the closure of the Strait of Hormuz, resulting in oil price spikes and increased fuel costs for shipping lines.
- However, following the ceasefire between Iran and Israel by the end of June 2025, oil transportation costs dropped and shipping traffic increased through the Strait of Hormuz.

**+69**
Number of attacks on international shipping in the Red Sea area between November 2023 and November 2024, as confirmed by IMO

**US$1.6b**
Estimated cleanup cost for an oil spill by a shadow fleet tanker

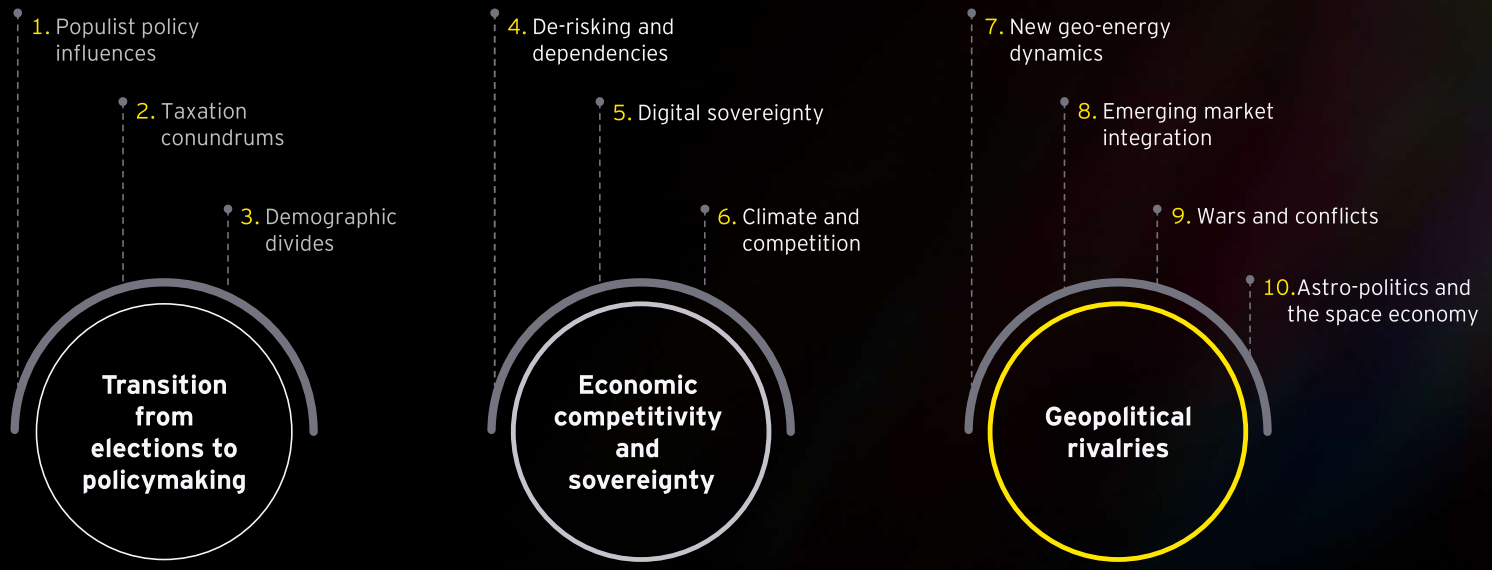
**10 days**
Additional days in transit time between China and Europe due to rerouting around the Cape of Good Hope to avoid the Middle East conflict region

**7%**
Weekly rise in West Texas Intermediate (WTI) and Brent crude prices for the week ending 20 June 2025 due to an Israeli airstrike on Iran

Note: P&I is protection and indemnity coverage; IMO is International Maritime Organization

# EY-Parthenon 2025 Geostrategic Outlook

## Top 10 geopolitical developments in 2025 on mobility, aerospace and defense




Supply chain shifts associated with emerging market integration, as well as wars and conflicts, are pushing transportation companies to assess the risks of their routes.

Insurance costs are likely to increase if they are forced to take on more risks.

Note: Risks in white font indicate the development is likely to have direct impact on the mobility, aerospace and defense sectors.

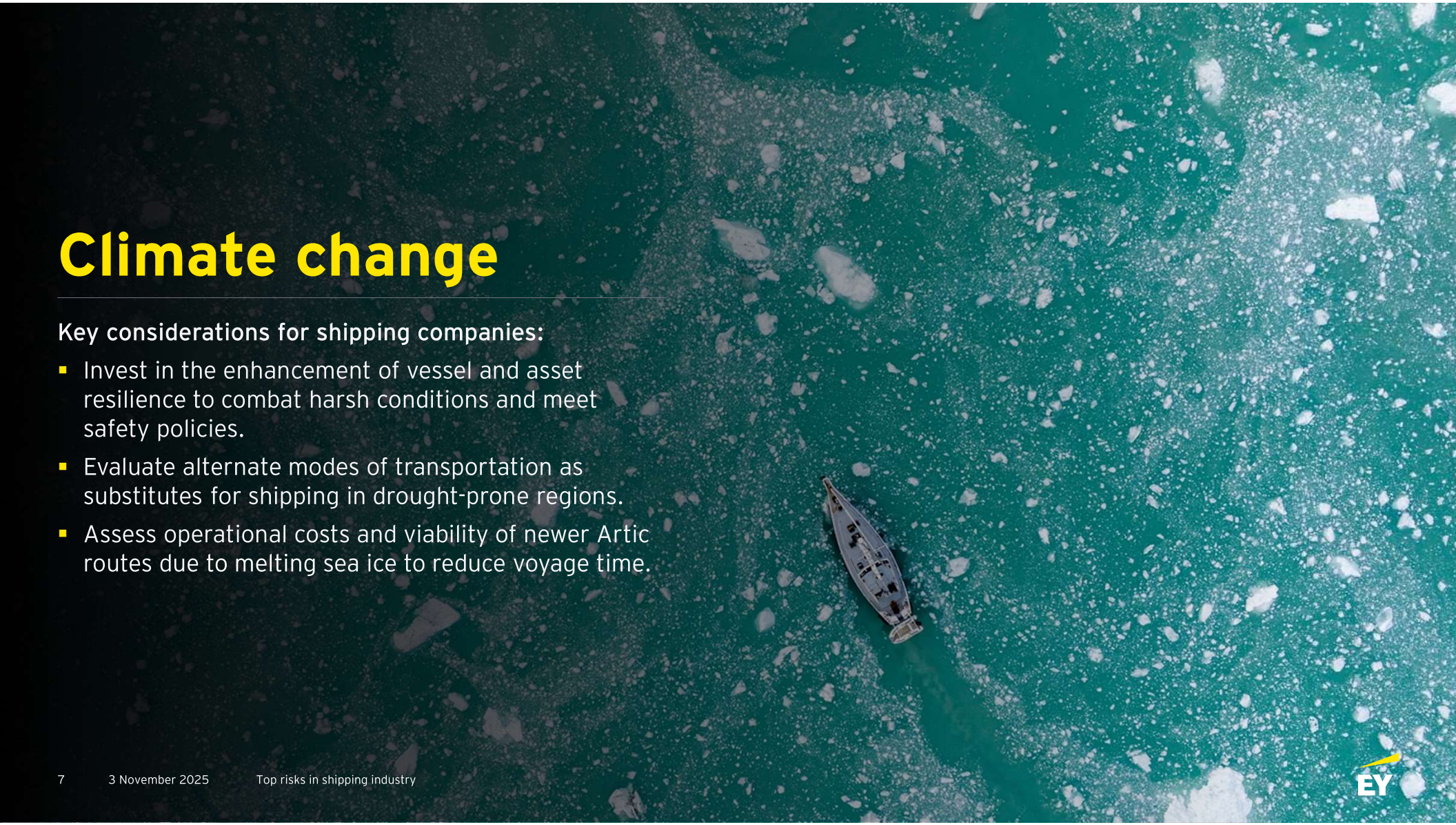
**Highlights:**

- In September 2024, the EY-Parthenon CEO Outlook found that over **33% of CEOs expect geopolitical disruption** and the shifting economic environment to be among the top disruptive forces in the next 12 months.
- However, only 30% of CEOs have full visibility into their company's exposure to political risk across operations, markets and suppliers.

# Climate change

**Key considerations for shipping companies:**

- Invest in the enhancement of vessel and asset resilience to combat harsh conditions and meet safety policies.
- Evaluate alternate modes of transportation as substitutes for shipping in drought-prone regions.
- Assess operational costs and viability of newer Artic routes due to melting sea ice to reduce voyage time.



# Changing climate has a significant impact on trade flows as shipping routes are re-evaluated and infrastructure damage delays operational turnaround

Factors or issues resulting from climate change

## Threat to ports and terminals

- Ports are increasingly vulnerable to climate change due to their coastal locations, facing risks such as sea level rise, storms and flooding.
- Ports are assets with a long useful life, and most existing ports were not designed for the current frequency and severity of extreme weather events.
- Key impacts from flooding, storms and hurricanes include infrastructure damage, service delays, navigation disruptions, and flooding of port and surrounding transport areas.
- Economic losses from damages to infrastructure and operational disruptions or delays, with knock-on effects across interconnected global supply chains, can be extensive.

## Rerouting and vessel losses

- Prolonged droughts are lowering water levels in key canals and rivers (e.g., Panama Canal and Yangtze), restricting traffic, raising costs, and forcing shifts to costlier routes or transport modes.
- Increased typhoons and storms are disrupting major ports in Asia and Americas, causing closures, congestion and delays across supply chains.
- Rising greenhouse gas emissions are warming oceans, altering currents, and intensifying storms, winds and low-pressure zones — creating major risks for maritime operations and disrupting shipping routes, forcing detours or delays, and increasing safety risks for crew, cargo and vessels.
- These changing conditions necessitate adaptations in route planning and vessel design to maintain operational safety and efficiency.

**2 days**

Average increase in storm duration and interruption in port operations with a 1-meter increase in mean sea level or for each 36 km/hour increase in wind speed

**86%**

Share of 1,340 of world's major ports exposed to over three weather-related hazards

**~30%**

Decrease in daily traffic from ships (from 36 ships to 24 ships as of January 2024) imposed by Panama Canal authorities due to unprecedented drought that has lowered the water level in the locks; current average wait time to cross the canal being 2 weeks

**25%**

Share of vessel losses reported in 2021 due to extreme weather

# Risks and opportunities associated with climate change for a shipping company

Rising greenhouse gas emissions are warming oceans, altering currents, and intensifying storms, winds and low-pressure zones —creating major risks for maritime operations

**Risk to safety:**
- Direct risks to crew safety including personnel injury or death, as well as other indirect risks such as heat-related accidents
- Recent increase in the number of containers lost at sea due to extreme weather conditions
- Damage or loss, deterioration, or spoilage of cargo

**Risk to financial structure:**
- Higher insurance cost and amended coverage terms due to climate-related uncertainty
- Investment in enhancing vessel resilience to withstand weather-related risks, including retrofitting ships with reinforced hull structures, improved cargo securing systems, advanced technical equipment and upgraded weather monitoring capabilities

**Risk to operational delay:**
- Longer routes to navigate storm- or drought-prone regions
- Increased compliance requirements for reporting lost containers at sea


**Opportunity from melting Artic sea:**
- Melting sea ice from global warming has led to the emergence of two new Arctic trade routes (Northern Sea Route (NSR) and North-West Passage) that are more accessible year-round, even for vessels with lower ice-class ratings.
- The routes offer shorter transit times and fuel savings but involve higher insurance costs, environmental risks, and limited emergency support.

**Opportunity for expanding into wider modes of transport:**
- Shipping companies are augmenting services to include land- and air-based transport to avoid high-risk routes and drought-prone areas.

**Risk to environment:**
- Spills, hazardous material releases and environmental pollution incidents

## US$10b

Estimated yearly cost to the shipping industry in damages from disruption to ports by 2050

## US$250m

Estimated cost of damage from Hurricane Katrina to the Port of Gulfport, along with the ships and cargo within it

## Chinese container shipping

In 2023, a China-based container shipping company launched the first regular container service via the NSR, operating four vessels between Qingdao (China) and St. Petersburg (Russia) from July to December

# EY-Parthenon 2025 Geostrategic Outlook

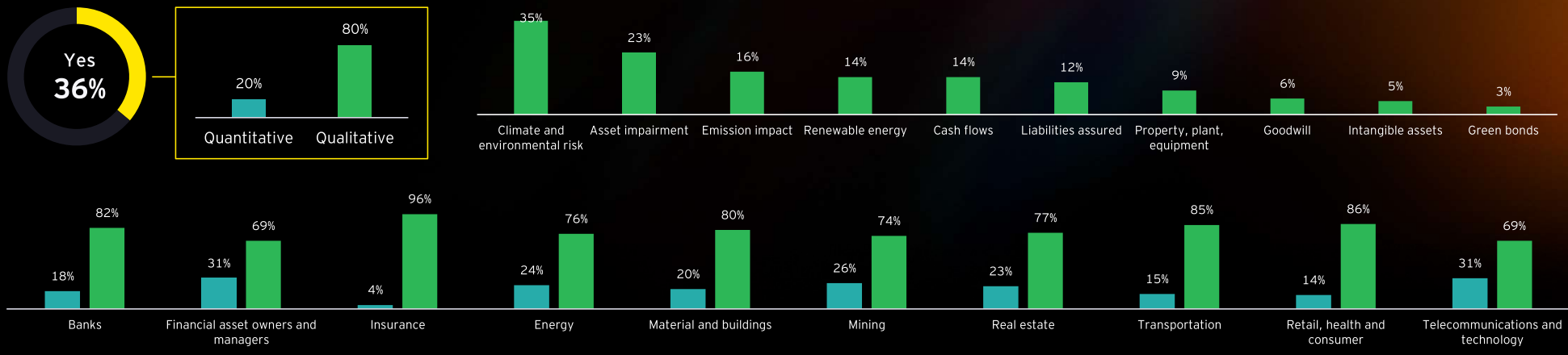
**Highlights:**

- The study revealed that while most of the companies are aware of the physical risks they face related to climate change, a mere 19% have adopted plans to mitigate those risks. CEOs, CFOs and boards should take steps to integrate cybersecurity more meaningfully into transformations and other strategic initiatives.
- Despite climate-related disclosure quality (54%) and coverage (94%) increasing, this growth does not match the pace needed to avoid the looming climate crisis.
- Less than half (41%) of large companies worldwide have published a transition plan for climate change mitigation, even as global temperatures hit new highs.

Climate transition plans help companies achieve ambitious climate targets and build a more resilient business.

Many companies set ambitious climate targets, but few have detailed plans to meet them and even fewer address the necessary transformations needed.

## Study findings: Are climate-related matters references in financial statements?

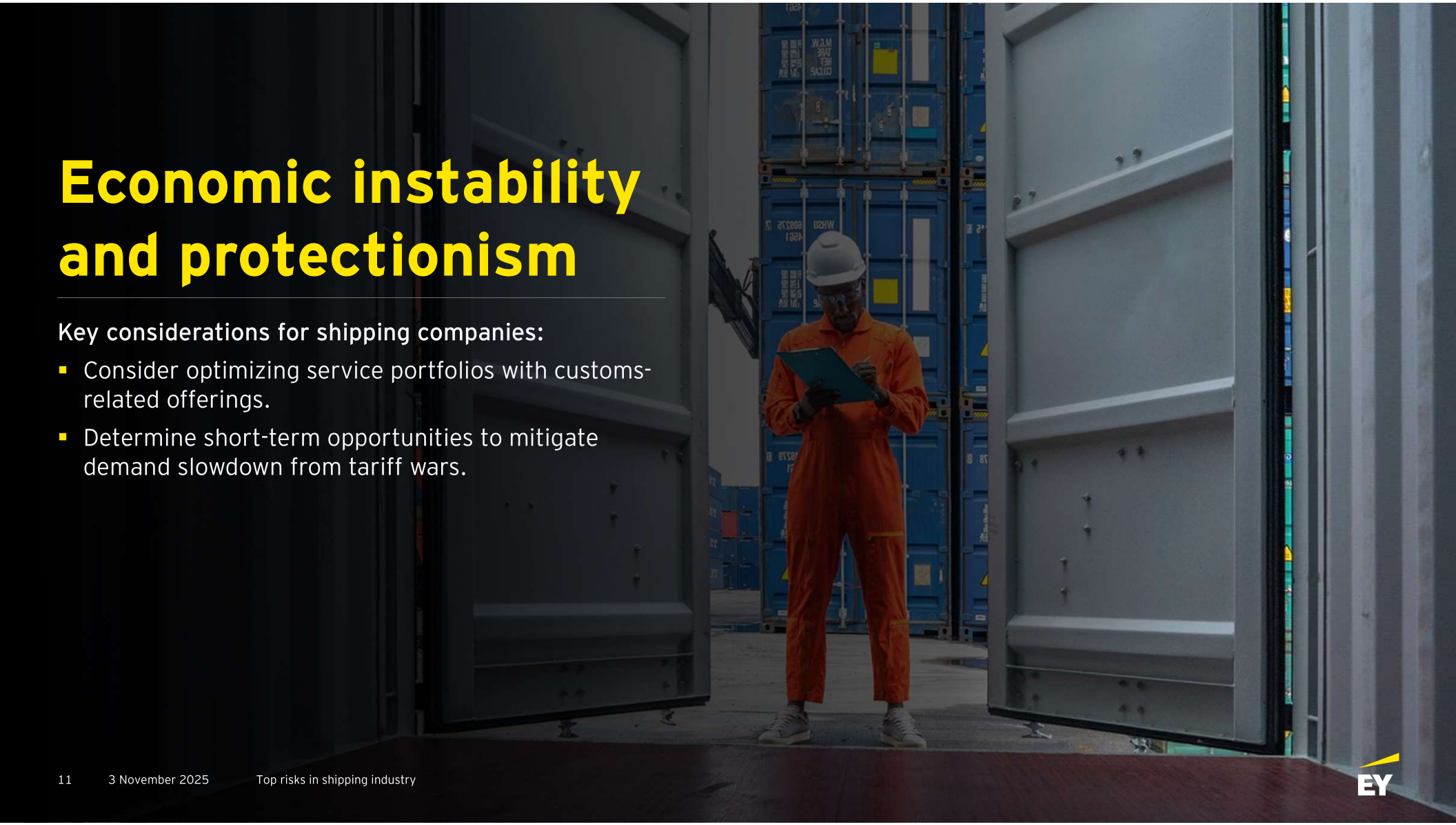



Note: Qualitative; Quantitative

# Economic instability and protectionism

**Key considerations for shipping companies:**

- Consider optimizing service portfolios with customs-related offerings.
- Determine short-term opportunities to mitigate demand slowdown from tariff wars.



# Tariff-driven trade shifts and anticipatory import surges are challenging the shipping industry's capacity, routing, and port infrastructure resilience

Factors or issues resulting from trade tariffs and protectionism

## Trade route diversification

- Tariffs force businesses to rethink and reroute supply chains, diversifying sourcing and trade routes to reduce costs and maintain resilience. Shipping carriers are, in turn, reshaping their service offerings, cancelling voyages, and rerouting shipments to respond to fluctuating demand and growing operational costs.
- US tariffs on Chinese goods in 2023 prompted many businesses to shift manufacturing to Southeast Asia – countries like Vietnam, Thailand and Malaysia – reshaping regional trade flows and increasing shipping demand on intra-Asian routes and from Southeast Asia to the US and Europe.
- Additional tariffs under the "US Retaliatory tariff scheme" in August 2025 have unbalanced trade globally despite two 90-day extensions.

## Port resourcing and congestion

- Tariffs trigger shifts in cargo flows, increasing activity at certain ports while reducing it at others. This volatility forces secondary and emerging ports to adapt operations and reallocate resources to manage fluctuating volumes efficiently.
- At the outset, tariff anticipation often accelerates imports of probable tariff-bound goods to manage inventory challenges, leading to port congestion from extended vessel wait times, complex customs documentation and inspection protocols.

**80%**

Increase in foreign direct investment from Chinese firms in Vietnam in 2023 due to companies relocating operations to avoid US tariffs

**10.1%**

Decline in container traffic at the Port of Oklahoma in June 2025, compared with previous month, as shippers unload freight at larger US ports in an effort to get the product in before tariff negotiations in August 2025

**6%**

Surge in traffic at Chinese ports in the third week of June 2025, compared with the previous week, driven by Chinese shipments to the US during the 90 days before tariff negotiations with the US in August 2025

# Risks associated with economic protectionism and trade tariffs for a shipping company

Tariff-induced trade disruptions expose the shipping industry to freight rate volatility, operational inefficiencies, and financial pressures as carriers adjust to shifting routes, unstable demand and rising costs.

**Risk of freight rate fluctuation:**
- Trade tariffs disrupt global trade flows, lowering demand on some routes and shifting cargo to others.
- This imbalance causes rate volatility as overcapacity lowers rates on tariffed routes, while tariff-free routes face surge pricing.
- Freight rates vary significantly by vessel type as tariff impacts differ across sectors.

**Risk of operational delay:**
- Tariffs push shippers to reroute cargo to avoid duties, often lengthening voyages and raising fuel consumption.
- Anticipation of tariffs causes importers to front-load shipments, leading to port congestion, vessel delays and container shortages.
- Tariffs lead to complex customs and border inspections, resulting in longer clearance times.
- Shipping carriers are reshaping their service offerings, cancelling voyages, and rerouting shipments to respond to fluctuating demand and growing operational costs.

**Risk to financial performance:**
- The wave of tariffs and retaliatory tariffs has led to a decline in trade volume between opposing countries, resulting in a loss of revenue and an increase in blank sailings.
- Tariffs may prompt a shift in sourcing strategy, potentially leading to trade between long-distance nations, resulting in longer voyages, e.g., US replacing Canadian steel with Brazil exports.
- Tariff wars drive currency fluctuations that impact fuel costs. Since marine fuel is priced in USD, a strong dollar raises bunker prices for operators in weaker currencies, tightening margins as observed with 2023 euro-based shipowners.


**Opportunity by realigning service**
- With new trade routes emerging and increased traffic to secondary ports, carriers have an opportunity to realign and increase sailings on emerging routes where tariff exposure is lower.
- Demand for short-sea shipping and feeder services to connect new production hubs is emerging.
- Maritime operators can reposition vessels and resources to manage surges in demand at emerging secondary ports, e.g., Singapore and Port Klang (Malaysia).

**Opportunity for customer-related services**
- Increase in cross-border documentation and inspection systems presents an opportunity for ship operators to collaborate with customs brokers to streamline tariff documentation and clearance procedures, reducing delays and penalties.

**16%**

Increase in average spot rates between China and the US West coast in April 2025, reaching US$383/FEU amid tariff imposition by the US

Note: FEU is 40 ft equivalent unit.

**25%**

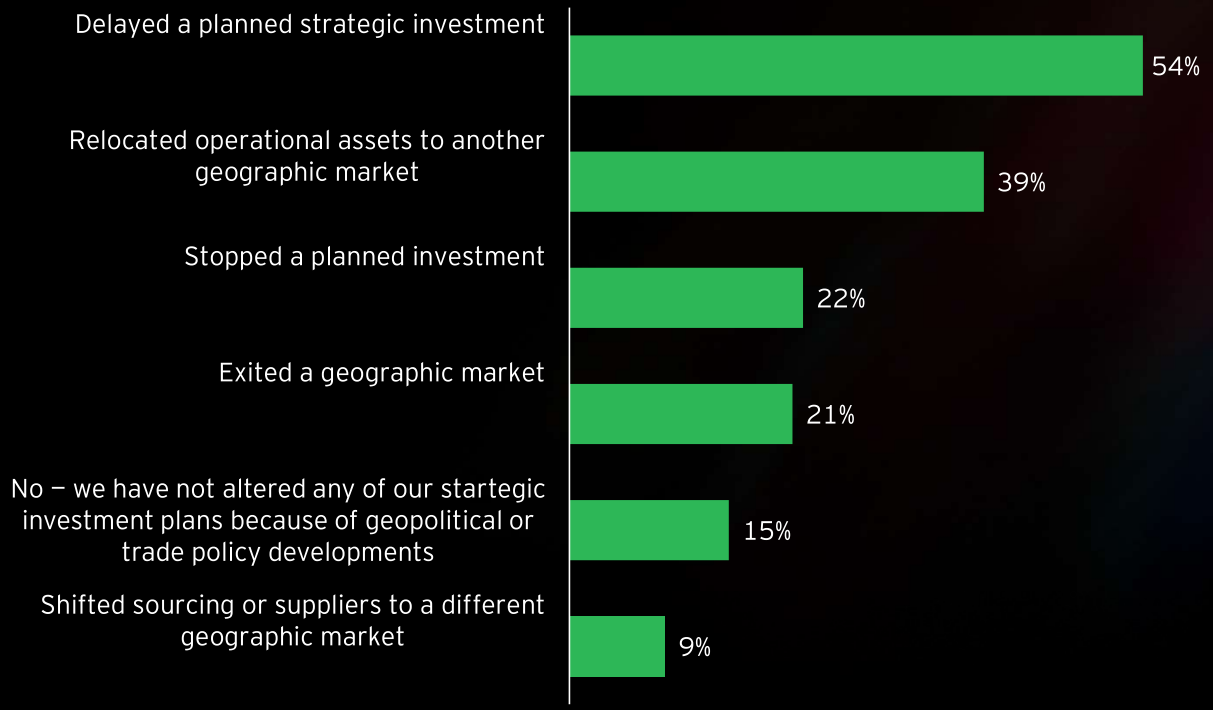
Decline in bookings on the US–China route during 7–11 April 2025 as per SONAR Container Atlas, following the Feb 2025 tariffs

**50%**

New tariff imposed by US on Indian goods in retaliation for India's oil purchase from Russia, which will coerce India to diversify its energy purchase from higher fuel price sources

# EY-Parthenon CEO Outlook Survey – March and April 2025

**Global findings of study: As a result of geopolitics issues and trade policy developments, have you made alterations to your strategic investment plans?**




Note: Respondents were asked to select multiple responses.

**Highlights:**

- 98% of global CEOs are concerned about potential tariff increases.
- 44% of business leaders are already examining alternative domestic sourcing and supply chain options.
- 42% of CEOs are looking at cost management strategies to mitigate the impact of increased tariffs.

Executives must navigate economic volatility and trade conflicts using strategic leadership and flexible scenario planning as traditional markers become more difficult to interpret.

CEOs can take the following actions:

- Establish and map current state.
- Build their "tariff team."
- Develop customs mitigation and recovery planning.
- Implement supply chain and tax planning.

# Decarbonization

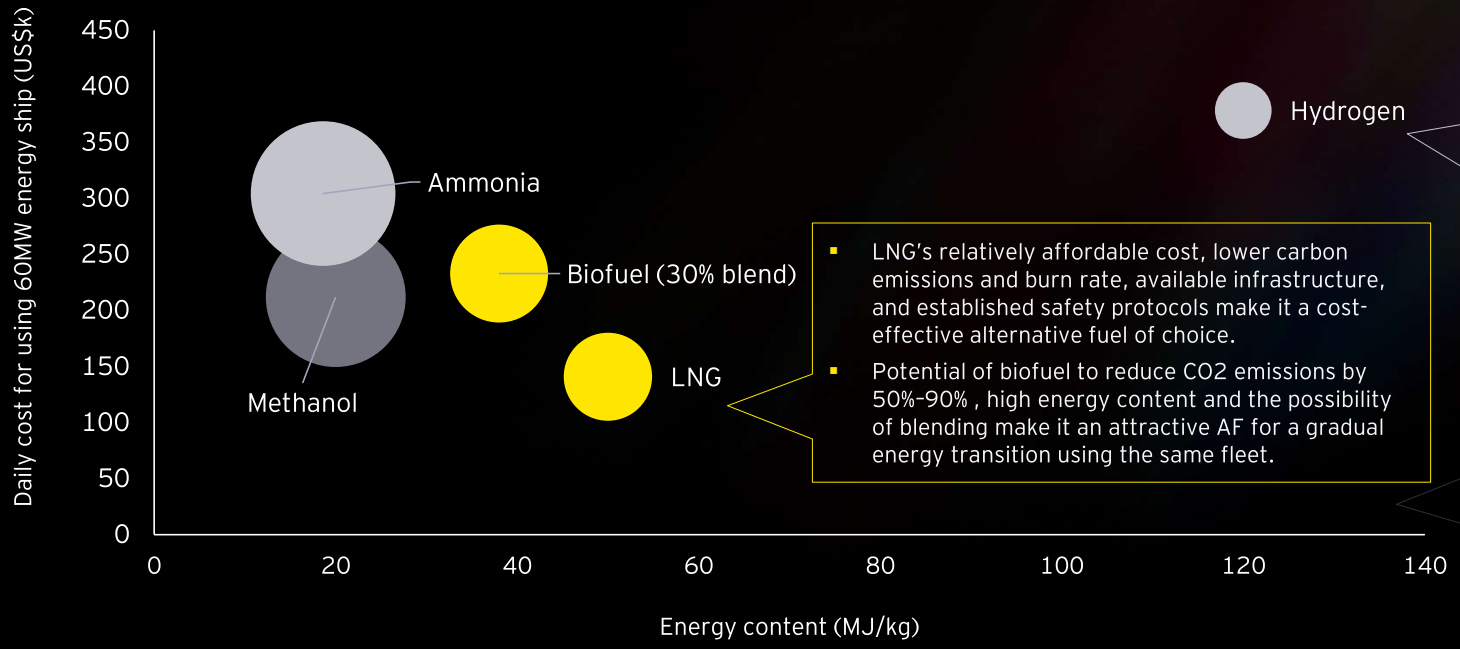
- Evaluate alternative fuels based on vessel type, route, availability and cost.
- Plan a phased adoption and long-term fuel supply security.
- Develop a transition plan to more eco-friendly shipping options, such as electric-powered vessels for short-haul routes.
- Assess the mix of energy efficiency measures and digital tools to meet emission guidelines.
- Develop a framework on sustainability-linked finance and incentives for decarbonization.
- Determine a fleet modernization strategy based on a balance between new builds and retrofits.

# Transitioning to low-emission fuels is pivotal to the sector's commitment of 50% emission reduction by or around 2050

While biofuels and liquefied natural gas (LNG) serve as transitional options, methanol, ammonia and hydrogen are viewed as long-term alternatives for deep-sea vessels, given their high energy content.

However, limited infrastructure and high cross-sector demand hinder adoption. The global fleet must also be upgraded to run on these fuels. By 2030, shipping could require 25%-30% of the global green fuel supply, with availability expected to improve beyond 2030.

Cost and energy comparison of alternative fuels (AFs) (bubble size is burning rate in tons/day)




- Despite the high energy density and carbon-free output of hydrogen and ammonia, these fuels are not viable in the short term.
- Currently, their high cost due to limited production, safety concerns and storage challenges offsets their efficiency advantages.

- LNG's relatively affordable cost, lower carbon emissions and burn rate, available infrastructure, and established safety protocols make it a cost-effective alternative fuel of choice.
- Potential of biofuel to reduce CO2 emissions by 50%-90% , high energy content and the possibility of blending make it an attractive AF for a gradual energy transition using the same fleet.

- Methanol's availability, compatibility with existing engines and moderate costs have led to its use in dual-fuel vessels in the short term.
- However, its lower energy content and burn rate result in higher operating costs.

Note: Daily cost is the average of price range for each fuel; Legend High maturity Low maturity Medium maturity

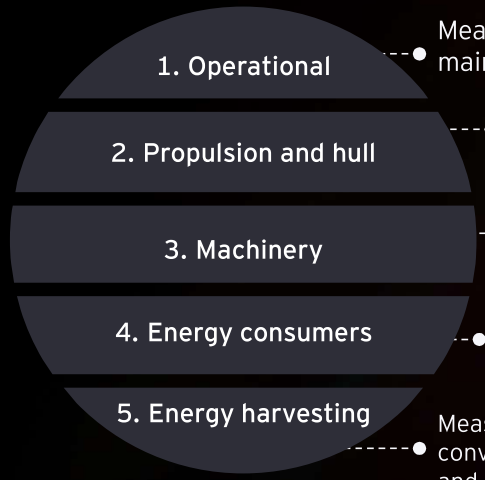
# Integrating energy efficiency in decarbonization strategy not only reduces CO2 emissions but also helps offset the high costs of new fuel technologies

## 16%

Estimated emission reduction in shipping (reducing onboard energy losses*) through technical energy efficiency measures – saving 40 mt of fuel and 120 mt CO2 emissions

- A 16% emissions cut through energy efficiency can substantially support the IMO's 2030 target, reducing short-term dependence on alternative fuels and allowing time for their market development.
- In the long term, integrating energy efficiency with higher-cost carbon-neutral fuels will enhance their economic feasibility and promote broader adoption.
- Additionally, digital tools enhance efficiency by optimizing vessel operations, routing, diagnostics and crew training, leading to significant fuel and emissions reductions.

## Categories of energy efficiency measures




- Measures related to the way in which a vessel is maintained and operated, and cargo is handled
- Measures that improve hydrodynamical performance of the vessel
- Measures related to the machinery on board the vessel, including main engines, auxiliary engines and related systems
- Improvement in energy efficiency of onboard consumers such as lighting equipment and cargo handling systems
- Measures that capture energy from the surroundings, converting it to propulsion power or electricity (e.g., sails and solar panels)

Propeller measures represent the most widely adopted energy efficiency measure – 6.7% across all vessel types – with containerships and bulk carriers accounting for ~60% of this uptake.

### Drivers of adoption

- Most measures compatible with newbuild and retrofitted vessels
- Over 60% of measures implemented within a short timeframe of six months or less
- Lower capex and operating expense compared with alternative fuel

### Barriers of adoption

- Need for third-party performance verification to build trust
- Varied performance depending on vessel type, weather conditions, sailing speed and other variables
- Current monitoring systems failing to isolate the individual impact of combined measures

Note: Onboard energy loss : About half the fuel energy onboard is converted into shaft power, while the rest is lost in the engine exhaust as heat. After accounting for losses in the propeller and transmission, only about a third of the fuel energy produces propulsion thrust to overcome the resistance of moving the hull through water. Energy efficiency measures reduce this energy loss.

# Risks associated with decarbonization for a shipping company

Amid multiple challenges to decarbonization, shipping companies must coordinate strategies to manage risks and enable a successful green transition.

**Risk from carbon pricing:**
- The International Maritime Organization (IMO) approved the shipping industry's first global carbon pricing mechanism in April 2025.
- Carbon taxes or emissions trading schemes raise fuel and operational expenses, especially for regions with strict carbon pricing.

**Risk from evolving technologies and regulations:**
- Decarbonization technologies such as carbon capture, fuel cells and wind-assisted propulsion are in early development stages, with uncertain reliability and scalability.
- Changing IMO and EU policies may shift compliance timelines, posing risks for early adopters if final standards differ, resulting in sunk costs or retrofits.

**Risk to operations and safety:**
- Retrofitting vessels or switching to new fuel technologies can lead to prolonged downtime, disrupting shipping schedules and affecting supply chain reliability.
- Alternative fuels such as ammonia and hydrogen pose safety risks to crew and assets due to their toxicity and flammability.


**Risk from large capital investment:**
- High investments in alternative fuels, propulsion, and vessel retrofits create financial challenges, especially for small and medium-sized operators.
- Limited infrastructure increases fuel transport and handling costs.
- Investment costs for digital tools and data analytics for energy consumption data and energy efficiency are significant.
- Carriers are securing sustainability-linked finance for green capital investment.

**Risk from infrastructure gaps:**
- Insufficient global bunkering infrastructure for alternative fuels (e.g., ammonia, methanol and hydrogen) restricts adoption and route flexibility.
- Ports lack the facilities and safety protocols needed to support low-carbon fuels and charging systems.
- There exists an opportunity to leverage electric vessels for short voyage.

**Risk from talent gaps:**
- New fuels such as ammonia and hydrogen pose safety risks due to their toxicity and flammability, requiring updated crew training, advanced handling systems and revised emergency protocols.
- Energy efficiency measures also demand new skills across crews and engineers; without proper training and workforce development, adoption may be inefficient or unsafe.

**13,500**

Number of existing vessels that may need engine conversions to use alternative fuels to meet the IMO 2050 ambition

**US$380**

Cost of per ton CO2-equivalent emissions that ships need to purchase (remedial units) for exceeding the base target of GHG fuel intensity* (GFI)

**50%-130%**

Higer price of an ammonia-powered new-build gas carrier vessel compared with an equivalent gas carrier

**10-30 million mt**

Estimated global renewable methanol production by 2030 insufficient for the 8 million metric tone projected demand due to competition from other industries

Note: GFI targets measure GHG emissions per unit of energy. Tier I (base target): 8% reduction in GFI by 2030, 30% by 2035, 65% by 2040; Tier 2 (direct compliance target): requires 21% reduction in GFI by 2030 and 43% by 2035

# 2023 EY study on slowing carbon change and accelerating decarbonization

## Five ways companies can accelerate their decarbonization pathways

**Set goals that sound impossible**

Setting targets and deadlines might not make decarbonization any easier, but it'll simplify the challenge for your people and clarify what is needed.

**Use compliance to accelerate action**

Start seeing regulations as a benefit, not a burden. They can be a catalyst you need to drive the right actions throughout your organization.

**Prioritize climate in decision levels**

Introduce decarbonization opportunities into tools and processes you use to make investment decisions, and use them to drive long-term value.

**Think like an owner**

Everyone needs to feel a sense of ownership to inspire action. A change in the way your business thinks has to be matched by a change in the way everyone behaves.

**Report what matters — and stop there**

The good intention to keep stakeholders in the loop all too often leads to an overwhelming pool of data. Take the data you need, simplify it and tell a story.

**Highlights:**

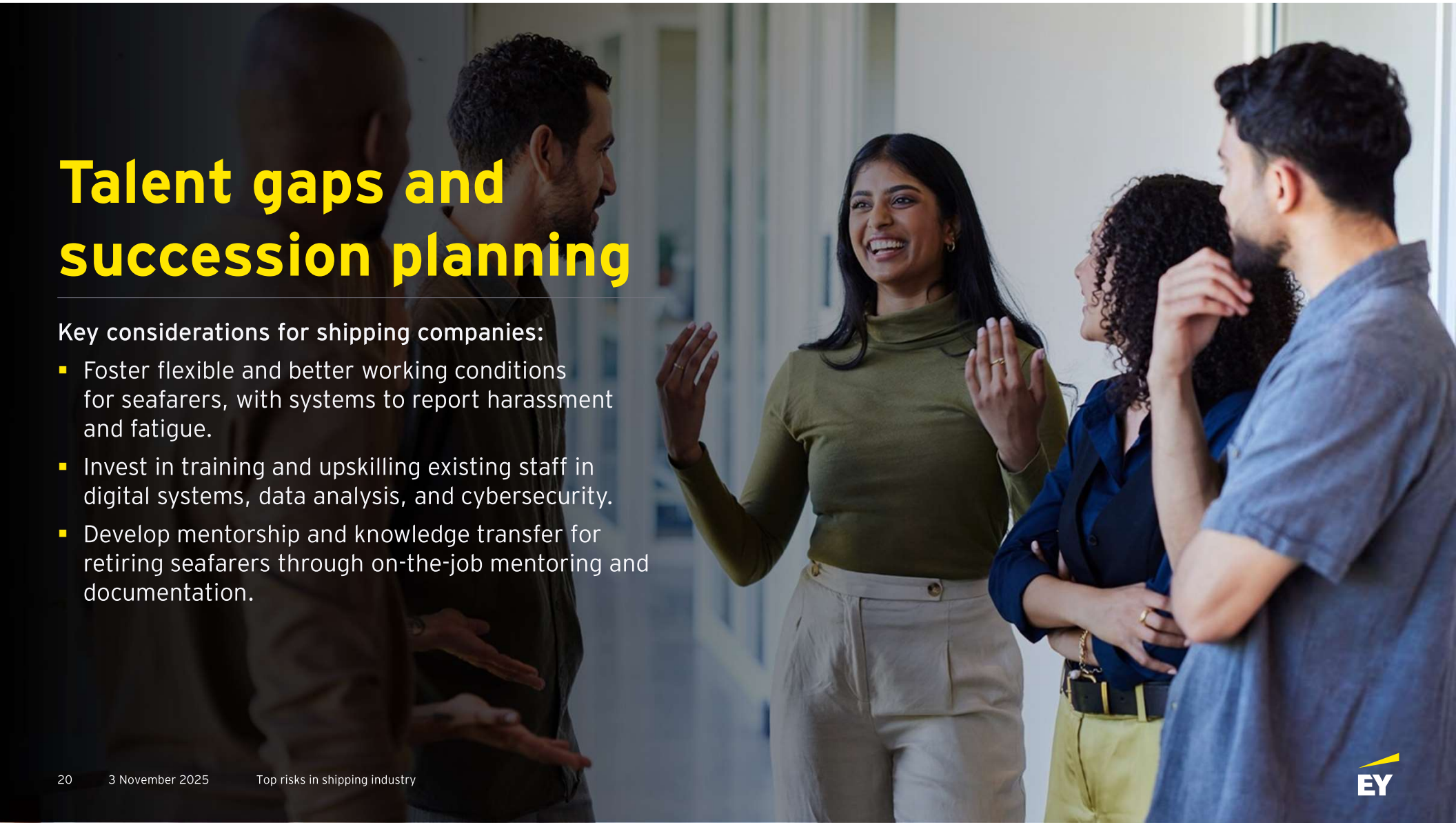
- 35% of companies have commitment milestones on or before 2030 for carbon reduction.
- 36% of companies believe climate change initiatives will negatively impact financial performance.
- 69% of companies have achieved higher than expected financial value from their climate actions.

Embracing value-led sustainability can help companies unlock more value from their climate actions and accelerate sustainable business transformation.

# Talent gaps and succession planning

**Key considerations for shipping companies:**

- Foster flexible and better working conditions for seafarers, with systems to report harassment and fatigue.
- Invest in training and upskilling existing staff in digital systems, data analysis, and cybersecurity.
- Develop mentorship and knowledge transfer for retiring seafarers through on-the-job mentoring and documentation.



# The shipping industry is facing challenges in recruitment and retention of skilled seafarers as approaching retirements and poor working conditions loom

## Factors or issues resulting in workforce shortage and retention

### Aging workforce

- As the seafarer workforce ages, there is a shortage of qualified seafarers to replace them:
  - In 2019, ~1.2 million seafarers were employed globally, with more than 8,000 new vessels on order. With an existing workforce shortage of 26,000 skilled officers (2021), the new fleet is likely to require more workforce.
- Key workforce contributors, such as Russian, Ukrainian, Chinese and Filipino seafarers, fall within the age bracket of above 50 years.
- Data for management-level officers (master, chief officer, chief engineer, second engineer), operational level officers and support-level ratings shows that ages have all increased since 2015.

### Poor working conditions

- Long working hours, sleep deprivation and exertion (physical or mental) are ranked among the top 10 fatigue risk factors, which has been detrimental to the recruitment and retention of onboard crew for shipping companies.
- Limited internet connectivity, social isolation, lack of onboard mental health support, along with substandard living conditions and harassment, are driving skilled seafarers away and deterring new entrants.
- Shore-based roles are becoming less attractive due to long hours, high stress and remote port locations. Global schedules limit flexibility, while outdated systems discourage digitally savvy younger talent.

**25%**

Share of Russian seafarers over the age of 50 as per 2021 ICS and BIMCO reports

**53%**

Share of UK seafarers aged between 40 and 61 years as of 2024

**43.6 years**

Average age of certified masters and officers in EU Member States in 2023

**11.5 hours per day**

Average working hours of seafarers on single-voyage contracts[1] with 90% reporting no weekly day off

**42%**

Share of maritime workers who experienced some form of bullying, harassment or discrimination at sea, as per the 2022 Nautilus International Survey

**87.6%**

Share of seafarers reporting an imbalance between work demand and crewing levels, as per the 2024 report by World Maritime University

Note: 1: Seafarers employed on single voyage contracts are paid only whilst onboard and the vast majority are employed indirectly via third-party crewing agencies (Devereux and Wadsworth, 2020). These workers must source a new voyage contract upon the completion of each voyage

# As the sector faces increased geopolitical uncertainties and undergoes rapid technological advancements, the pool for skilled workforce has become critical

## Factors or issues resulting in workforce shortage and retention

### Geopolitical conflicts

- The Philippines, China, Russia, Indonesia, India and Ukraine are the largest suppliers[2] of the world's seafarers, collectively accounting for ~50% of seafarer supply in 2021.
- The Russia-Ukraine conflict has reduced the supply of seafarers from both countries due to an overall war-induced labor shortage and visa restrictions for Russian seafarers, restricting employment on Western-owned vessels. Houthi attacks on vessels in the Red Sea have led to seafarers being unwilling to traverse conflict zones without higher compensation and contingencies.
- Increased militarization of the South China Sea raises risks for vessels transiting contested waters, with security considerations affecting the hiring and manning of certain nationalities.

### Requirement for new skill set

- Transitioning to low-carbon fuels like hydrogen and ammonia requires specialized training to handle hazardous materials safely.
- Decarbonization efforts require seafarers to master new technologies, fuels (e.g., LNG, hydrogen and ammonia) and complex emissions regulations.
- There is a shortage of officers with technical experience, especially at the management level. And in the tanker and offshore sectors there is a reported shortage of management-level deck officers.
- Rise of digital technologies, including AI, data analytics and automation, demands a new skill set that many current seafarers lack, and the traditional onshore talent pool is insufficient.

**14.5%**

Share of Russian and Ukrainian seafarers in the global shipping workforce before the conflict, as per the 2021 Seafarer Workforce Report by the International Chamber of Shipping (ICS) and BIMCO

**70+**

Attacks on ships by Houthis till 2024, with two vessels sunk and one seized

**26,000**

Shortfall of STCW[1]-certified officers, indicating that demand for seafarers in 2021 has outpaced supply, as per the report by ICS and BIMCO

**90,000**

Expected shortfall in STCW-trained seafarers by 2026, as per the International Council of Shipping (ICS)

Note: 1: International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW)
2: The Philippines (13.3%), China (7.5%), Russia (10.4%), Indonesia (7.6%), India (6%) and Ukraine (4%)

# Risks associated with workforce shortfall for a shipping company

The shortage of skilled professionals is fueling a mix of safety concerns, operational disruption, elevated freight rates and succession challenges among other risks.

**Risk to safety:**
- Crew shortages are forcing existing seafarers to spend longer periods at sea, leading to fatigue, mental health strain and increased risk of onboard accidents.
- Higher wages are attracting unqualified applicants, with some submitting fake credentials, raising serious safety and compliance concerns.

**Risk to exposure of organized crime:**
- Increased demand for staff creates openings for organized crime groups to infiltrate supply chain.
- This raises risks of cargo theft, drug smuggling and human trafficking, exposing shipping companies to legal and reputational damages.

**Risk to operational delay:**
- Crew shortages and delayed crew changes reduce vessel availability and slow turnaround times, impacting global shipping schedules.
- Port and shore-side staffing gaps cause congestion, slower cargo handling and increased dwell times, disrupting supply chain reliability.


**Risk from loss of knowledge:**
- As experienced personnel exit the industry, critical operational knowledge, navigational expertise and safety practices are being lost, threatening continuity and increasing training cost for shipping companies.

**Risk to volatile freight rate:**
- Seafarers' wages make up a big part of a ship's operating costs, which are expected to stay high as companies raise salaries in an attempt to attract and retain talent. This will likely keep freight rates elevated.

**Risk to delayed strategy implementation:**
- Shortage for seafarers with advanced skills in alternative fuel vessels (e.g., LNG, hydrogen, ammonia) and complex emissions regulations is slowing the decarbonization initiatives.
- Traditional onshore talent pools lack expertise in AI, data analytics and automation, delaying digital transformation efforts.

**93%**

Share of seafarers citing fatigue as a safety-related challenge, as per the 2024 study by the World Maritime University

**~14%**

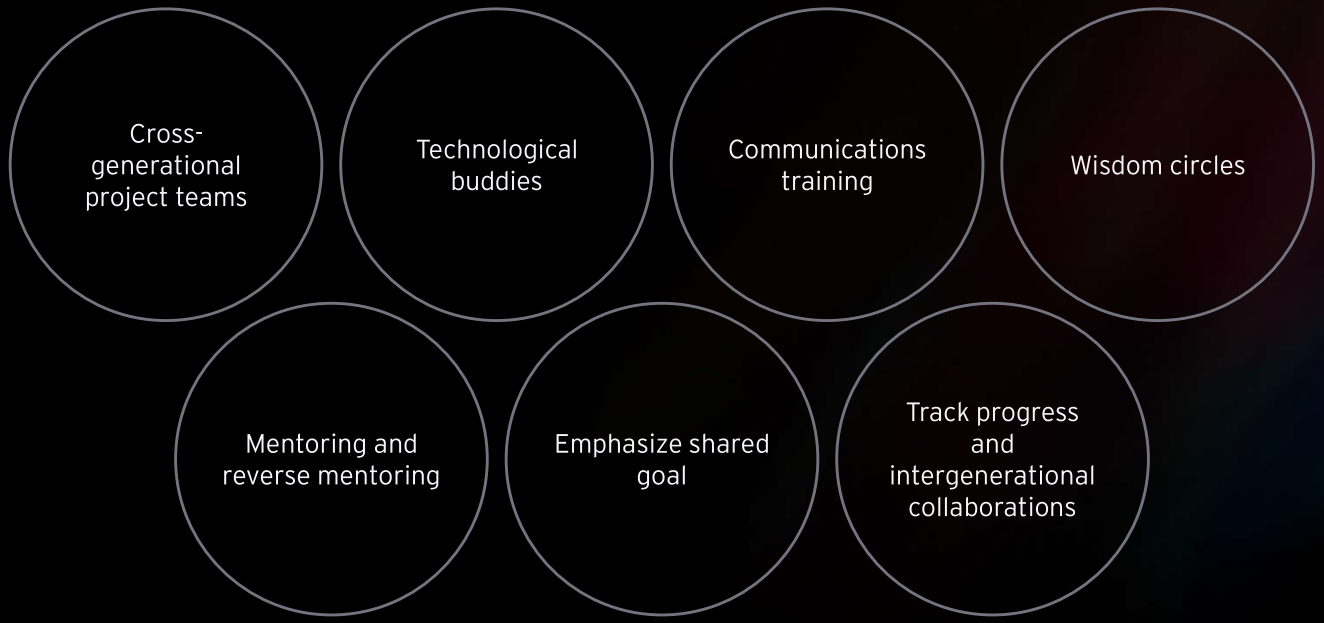
Share of ports in Italy impacted by the presence of organized crime groups, as per the 2020 report by Springer Nature

**78%**

Share of seafarers reporting not having a full day off throughout the entirety of a contract period, as per the 2024 study by World Maritime University

# 2024 EDGE-EY-EqualVoice Survey

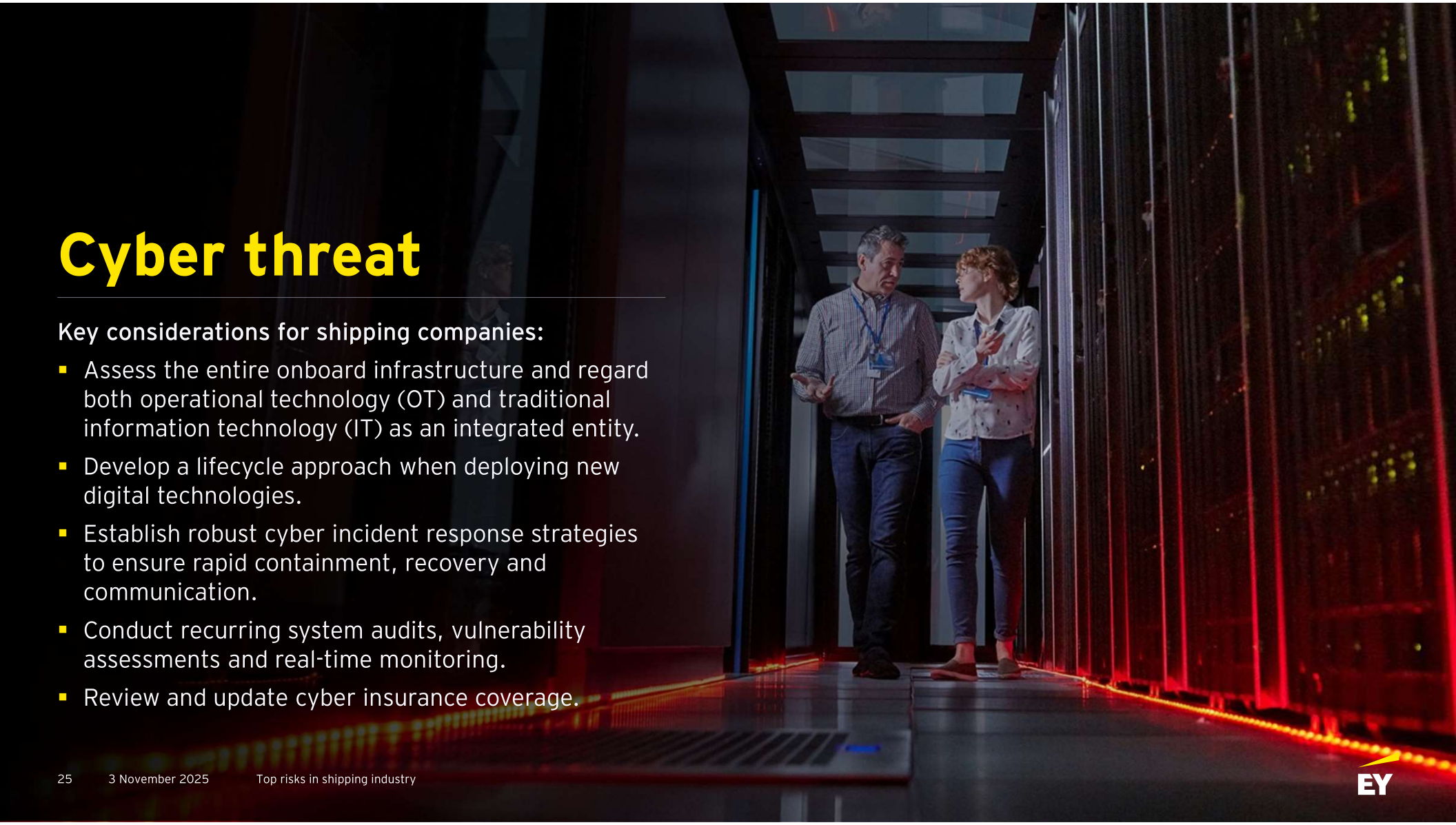
**To effectively address intergenerational collaboration challenges, organizations may consider the following actions:**




**Highlights:**

- The 2024 EDGE-EY-EqualVoice Survey reveals two key challenges: bridging the generational divide and avoiding a leadership crisis.
- Making intergenerational wisdom a lived experience rather than an aspirational goal is a business imperative that deserves sustained C-suite attention.
- The study reveals a significant gap in perceptions: Gen Z reports the highest dissatisfaction with intergenerational teamwork, with 19% viewing it as negative. At the other end of the workforce age scale, more than three-quarters (76%) of Baby Boomer colleagues (ages 60-66+) see workplace dynamics as positive.

Strategic workforce planning that effectively harnesses generational dynamics has become a key differentiator between companies that merely survive and those that thrive in the modern business landscape.



# Cyber threat

**Key considerations for shipping companies:**

- Assess the entire onboard infrastructure and regard both operational technology (OT) and traditional information technology (IT) as an integrated entity.
- Develop a lifecycle approach when deploying new digital technologies.
- Establish robust cyber incident response strategies to ensure rapid containment, recovery and communication.
- Conduct recurring system audits, vulnerability assessments and real-time monitoring.
- Review and update cyber insurance coverage.

# The shipping industry is facing increased threat of cyber attacks as the industry embraces digitalization and vessel connectivity

## Factors or issues resulting in cybersecurity risk

### Digital transformation and interconnectivity

- As the industry increases its use of technology across the maritime sector – from ship networks to offshore installations and shoreside control centers – the threat of potential cybersecurity breaches has also increased.
- As a majority of maritime operational technology and fleet operations are digitalized, the risk of a cyber attack could compromise vessel communication systems, navigation suites, cargo management, engine monitoring and control, et al. Failure of any of those systems could result in a vessel being stranded and potentially grounded.

**71%**

Share of survey respondents who believe their organizations' industrial assets are more vulnerable to cyber attacks from an increasingly connected industry

**400%**

Increase in attempted hacks between February 2020 and June 2022, coinciding with maritime industry's greater use of technology and digital adoption

### Expanded use of operational technology

- The operational technology (OT) system manages a ship's physical operations and is often less secure than IT systems, making them easier to exploit by hackers and putting life, property, environment, finance and reputation at stake.
- Many onboard OT systems include remote access features, making them vulnerable to unauthorized access, tampering, sabotage or data theft.
- Outdated or unpatched software and firmware in shipboard OT systems pose significant cybersecurity risks, as limited connectivity at sea delays timely updates.
- Ships docked at ports face heightened cyber threats due to frequent connections with onshore networks and nearby vessels, increasing the risk of malware spreading across systems through wireless networks or physical connections.

**42%**

Share of a ship's OT networks accessed by Coat Guard Cyber Protection Teams (CPTs) using common privilege and escalation techniques, as part of the 2023 cybersecurity assessment by the US Coast Guard

**78%**

Share of a ship's OT assessment missions reporting the use of end-of-life software as an entry for breach, as per the 2023 cybersecurity assessment by the US Coast Guard

**31%**

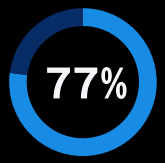
Share of respondents reporting compromised OT systems in the past 12 months (11% in 2022), as per the 2023 survey by New Fortinet

# While financial gain is a primary motive for cyber attacks, blockchain is becoming a hideout for cyber criminals

Types of cyber threats:

- Malware and ransomware
- Phishing emails
- Freight forwarding fraud
- GPS spoofing
- Bill of Lading ransom
- AIS manipulation
- Corporate hacking


Share of security breaches in 2024 caused by malware spreading onto vessel systems




Share of 2024 malware cases on vessels spread through USB and removable media, such as engineers' laptops

**Objective of hackers**

| Halt operations | Financial gain | Data and IP theft | Undermine national security |
|---|---|---|---|
| 2017: The NotPetya malware outbreak paralyzed a leading container shipping company's global operations by shutting down terminals, crippling navigation systems and flooding ports with delayed cargo. | 2021: A ransomware attack on a US based pipeline caused a system breakage. The company paid a ransom of US$4.4m in bitcoin to reinstate operational control. | 2023: A cyber attack on five ports of a logistics company led to the theft of sensitive employee data. | 2025: European and Mediterranean ports, serving as critical NATO logistics hubs, are facing a surge in cyber attacks from state-linked actors, as per a new policy brief from the NATO Cooperative Cyber Defence Centre of Excellence. |

**1,200+**

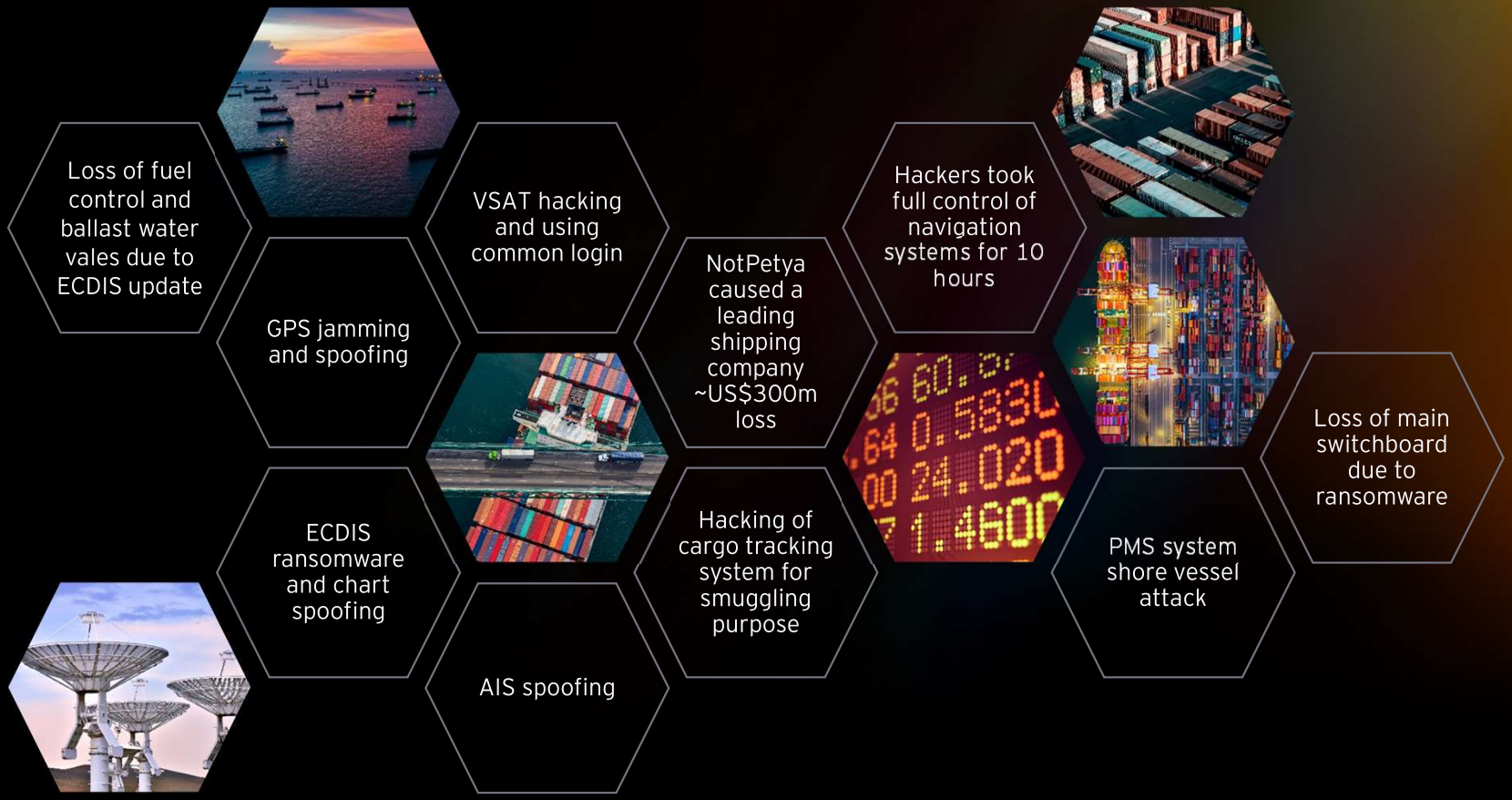
Number of vessel cybersecurity cases reported in 2024

**US$300m**

Cost of damages and disrupted operations from NotPetya attack on a top shipping company

Note: AIS is Automatic Identification System; GPS is global positioning system

# Recent cases of cyber breach in the shipping industry




Note: The above cases are not exhaustive.
Note: ECDIS is Electronic Chart Display and Information System; AIS is Automatic Identification System; VSAT is Very Small Aperture Terminal; PMS is Planned Maintenance System; GPS is global positioning system.

# Risks associated with cyber attacks for a shipping company

Increasing cyber attacks in the shipping industry is posing risks to vessel and crew safety, putting financial strain on the company, causing supply chain bottlenecks, and heightening compliance and governance.

**Risk to safety:**
- Attack on navigation and engines may lead to collisions, groundings or loss of propulsion, endangering the vessel and crew.
- Compromised communication or cargo systems can hinder emergency response, cause unsafe cargo handling or lead to equipment failures.

**Risk of financial loss**
- Demand for direct ransom payments and investment in the recovery and restoration of compromised systems (IT and OT) impact the company's liquidity.
- There is an increase in operational cost from subsequent insurance premium raise.
- Operational disruption may lead to delayed voyages, reroute vessels or even disable ships entirely – resulting in lost revenue, demurrage, and increased fuel and labor costs.
- Loss or damage to cargo can further cause financial liability.

**Risk to company's goodwill:**
- Delayed or inadequate response to a cyber attack can erode client trust in the company's ability to safeguard cargo data, delivery timelines and personal information, resulting in business loss.


**Risk of operational delay:**
- Compromised navigation (e.g. GPS and ECDIS) or propulsion systems can delay or halt voyages, affecting schedules, charter commitments and cargo delivery timelines.
- Cyber incidents can interfere with port communications, customs documentation or cargo data, causing delays in docking, unloading or onward transportation.

**Risk of increased compliance and governance**
- Cyber incidents can lead to breaches of maritime cybersecurity regulations (e.g., IMO 2021 guidelines), and access to sensitive data (under GDPR), resulting in penalties, operational restrictions and legal actions.
- Cyber attacks can compromise record-keeping and reporting systems, causing inaccurate or incomplete compliance documentation.

**Risk to association with organized crime**
- Cyber attacks may be used to compromise system for contraband smuggling by organized crime divisions.
- Ransomwares may be deployed to lock shipboard or shore-based systems in exchange for payments to criminal organizations.

## IMO Resolution MSC

Implemented in 2021, requires owners or operators to consider overall cyber risks, and to implement cybersecurity across all levels of their management system

## US$550,000

Average cost to a target company in maritime industry from cyber attack in 2023 (an increase of 200% from 2022)

## 76

Number of global port terminals that were shut down in the event of NotPetya attack on a leading container shipping company in 2017

## 79%

Share of maritime professionals concerned with criminal organizations causing ransomware attacks as per a 2024-25 report by DNV

# 2025 EY Global Cybersecurity Leadership Insights Study

## Secure Creator's approach to cybersecurity helps drive value creation


Note: Prone Enterprise Secure Creator

The study revealed a group of respondents known as "Secure Creators" – first identified in the 2023 EY Global Cybersecurity Leadership Insights Study as organizations with more advanced cybersecurity functions than their peers – who were involved earlier and more deeply than their peers in their business's key initiatives.

Secure Creators were more likely to help other business functions implement AI than "Prone Enterprises" (48% vs. 31%).

Secure Creators were also more likely to have positively impacted how external stakeholders perceive their brand (72% vs. 56% of Prone Enterprises).

**Highlights:**

- The study found that cybersecurity contributes by 11% to 20%, or a median of US$36m, in value to each enterprise-wide strategic initiative it is involved in.
- Chief Information Security Officers (CISOs) who are involved early in cross-function decision-making generate more value than those who were consulted late or not at all.
- CEOs, CFOs and boards should take steps to integrate cybersecurity more meaningfully into transformations and other strategic initiatives.

# Technological disruption

**Key considerations for shipping companies:**

- Develop a sustainable digital transformation framework in line with industry technology maturity.
- Invest in low-cost and scalable digital solutions.
- Provide regular training for employees on new technologies.
- Ensure seamless integration of new systems with existing logistics infrastructure.

# Transformation by maritime digitalization technologies

## Internet of things

- Predictive maintenance: IoT sensors track engine performance to detect early faults, reducing breakdowns and minimizing downtime.
- Fuel efficiency optimization: Real-time fuel monitoring reduces costs and minimizes environmental impact.
- Cargo monitoring: IoT-enabled containers track temperature, humidity and movement to protect sensitive cargo in transit.
- Fleet management: IoT tracking systems optimize routes, cut idle time and boost vessel efficiency.

## Data analytics and artificial intelligence

- Route optimization: AI-driven predictive analytics identifies optimal routes, avoiding severe weather and port congestion.
- Fuel consumption analysis: AI uses real-time data to improve fuel efficiency and lower emissions.
- Equipment failure prediction: Machine learning anticipates breakdowns, enabling proactive maintenance.
- Cargo handling efficiency: AI streamlines port operations, reducing turnaround times and increasing productivity.

## Blockchain

- Supply chain transparency: Blockchain creates a secure digital ledger, enabling end-to-end shipment tracking.
- Smart contracts: Self-executing agreements automate transactions based on predefined conditions.
- Fraud prevention: Digital documents reduce errors and fraud, streamlining processes.

## Virtual reality (VR) and augmented reality (AR) and remote extended reality (XR)

- Crew training: AR and VR simulate high-risk scenarios to enhance safety and skill development.
- Asset inspection: AR supports early detection of equipment issues through enhanced visual assessments.

**15%**

Reduction in fuel consumption by a key container shipping company using IoT-driven vessel performance improvement

**5-10%**

Reduction in fuel consumption by multinational food corporation leveraging AI for route optimization

**5x**

VR trainings are upto 5x faster than traditional trainings as per studies

# Despite technological advances, digital adoption is slowed by absence of common standards, limited investment, employee resistance and legacy systems

Factors or issues resulting in slow adoption of digital technologies in shipping industry

## Lack of standardization and uneven adoption

- Absence of common industry standards is a key barrier to digital transformation in shipping, resulting in fragmented processes, inconsistent technology adoption and poor interoperability across systems.
- This restricts the integration of technologies such as automation, AI and data analytics, as the absence of standardized data sharing prevents stakeholders from establishing a unified operational view, thereby limiting collaboration and the comprehensive optimization of the maritime supply chain.

## Dependence on outdated systems and technology incompatibility

- Many maritime stakeholders, including freight forwarders, cargo owners and shipping operators, continue to rely on outdated infrastructure, which entails high costs to upgrade and is difficult to integrate with modern digital tools.
- These legacy systems create significant challenges in achieving data accuracy, real-time tracking and end-to-end supply chain visibility.
- Smaller firms, in particular, face budget constraints that limit their ability to invest in necessary system upgrades, often leaving them dependent on external IT support, resulting in uneven and slow digital adoption.

## Resistance from employees

- Concerns over job security may lead to employee resistance to digitalization, especially in unionized settings such as ports, where automation initiatives have earlier faced opposition.
- As new technologies become more complex, employees must be willing to upskill and adapt to leverage these tools for efficiency.
- However, internal pushback complicates adoption efforts, delays implementation and hinders broader supply chain modernization.

## High capital investment

- Substantial capital required for technological adoption poses a significant barrier, with key stakeholders such as banks often delaying investment until sufficient funding and investor confidence are secured.

# Risks associated with technological investment for a shipping company

Adoption of digital technology increases cyber threats, integration issues, high costs, talent gaps and regulatory risks – impacting operations, finances and compliance.

**Risk from cyber attacks:**
- Increased digitalization through IoT, cloud platforms and automated navigation systems exposes shipping companies to cyber threats.
- A successful cyber attack can cause operational paralysis, financial loss, reputational damage and legal consequences.

**Risk from operational failure:**
- Technology adoption can temporarily disrupt operations due to staff learning curves and initial system issues, causing delays, schedule disruptions, and impacting customer satisfaction and revenue.

**Risk from integration challenges:**
- New technologies must integrate with existing ship systems, port infrastructure and logistics platforms.
- Legacy system incompatibility, inadequate data standardization and limited technical expertise can result in operational disruptions, data silos and inefficiencies, while also prolonging project timelines and increasing implementation costs.


**Risk from high finance cost:**
- High capital expenditure on technology can strain the finances of shipping companies, particularly SMEs.
- Failure to achieve expected cost savings or efficiencies may result in prolonged payback periods or losses, while unforeseen implementation costs can further increase total ownership expenses.
- The cost of workforce training is an added investment to maximize technology benefits.

**Risk from noncompliance with regulatory policies:**
- Technology investments made in anticipation of regulatory changes risk noncompliance or redundancy if regulations evolve differently than expected, potentially leading to additional costs for meeting actual standards.

**Risk from talent gaps:**
- Advanced technologies demand skilled personnel in data analysis, digital management and cybersecurity.
- Insufficient training can lead to underutilization and errors, while resistance to change may hinder adoption.

## 66%

Share of cargo owners relying on external support for digitalization, despite 90% being prepared for digital upgrades

## 1,800+

Number of maritime vessels targeted for cyber incidents in 1H 2024 with 23,400 malware detections, as per the 2024 report by MarPoint and Darktrace

## US$600m

Planned investment by logistics provider on replacing skilled Australian dockworkers with automated equipment within the Australian container terminal network

## 6-10 days

Average vessel waiting time offshore at Rotterdam port due to labor strike over contract negotiations and automation concerns in February 2025

# Piracy and maritime crime

**Key considerations for shipping companies:**

- Evaluate alternative routes to avoid high-risk areas for the safety of crew and vessel.
- Invest in vessel reinforcement for safety, along with added security measures.

# Operations spanning multiple geographies and stakeholders expose the industry to piracy, corruption and maritime crimes

## Factors or issues resulting from piracy and maritime crime

### Threat to crew, vessel and cargo

- Piracy poses a serious threat to container shipping, especially in the Gulf of Guinea and Strait of Malacca, leading to cargo theft, crew risk, higher insurance premiums and rerouting delays.
- South and Latin America currently experiencing the highest increase in maritime crime of any region in the world.
- Escalated criminal activity makes docking at ports unfavorable, with carriers reconsidering route paths and layovers – long stays at ports may be avoided.
- Logistics operators must invest in security measures when docking at ports, undertaking added cost on operations.

### Organized crime

- A large volume of container handling, along with a low percentage of physically inspections, makes the detection of illicit products challenging and opens ports to organized crime network for the movement of illegal goods.
- Operations spanning multiple geographies, stakeholders, and government officials holding broad discretionary powers expose the industry to corruption.

**+2,000**

Corruption incidents linked to the risk of vessel and crew safety, including the threat of physical violence, as reported on the Maritime Anti-Corruption Network (MACN) helpline in 2021

**61%**

Reported incidents to MACN in 2022 from ports in East Asia and Pacific, and the Middle East and North Africa

**10%**

Estimated additional cost to business as a share of sales due to corruption in high-risk markets and over 5% in many other countries, as per the World Bank

**US$2.6t**

Estimated global cost of corruption over 5% of GDP, with over US$1t paid in bribes each year

# Risks associated with piracy and maritime crime for a shipping company

Piracy and organized crime threaten crew safety, disrupt operations, increase costs and harm reputation, posing significant challenges to the shipping industry.

**Risk to safety:**
- Piracy remains a significant maritime security threat, especially in high-risk areas such as the Gulf of Aden, Strait of Malacca and off the coast of Somalia.
- The shift from hijacking to targeted theft and insider-driven container pilferage, especially in ports and congested sea lanes, is increasing the risk to the safety of crew.
- Piracy risks may deter young talent from pursuing maritime careers, potentially causing a future seafarer shortage.

**Risk to exposure of organized crime:**
- The industry's presence across diverse regions, combined with numerous stakeholders and government officials wielding broad discretionary authority, increases its exposure to corruption risks

**Risk to operational delay:**
- Rising criminal activity is making port calls less attractive, prompting carriers to rethink routes and minimize layovers – especially avoiding extended stay.
- Detours due to piracy hotspots add significant distances to shipping routes, which translates to higher fuel consumption, longer journey times and increased transportation costs.


**Risk to financial resources:**
- Piracy increases financial burden through higher insurance premiums, additional security measures for the crew and potential ransom payments.

**Risk to reputation:**
- Attacks can endanger crew, delay deliveries, damage assets, and harm the company's' reliability and brand.

## 10%

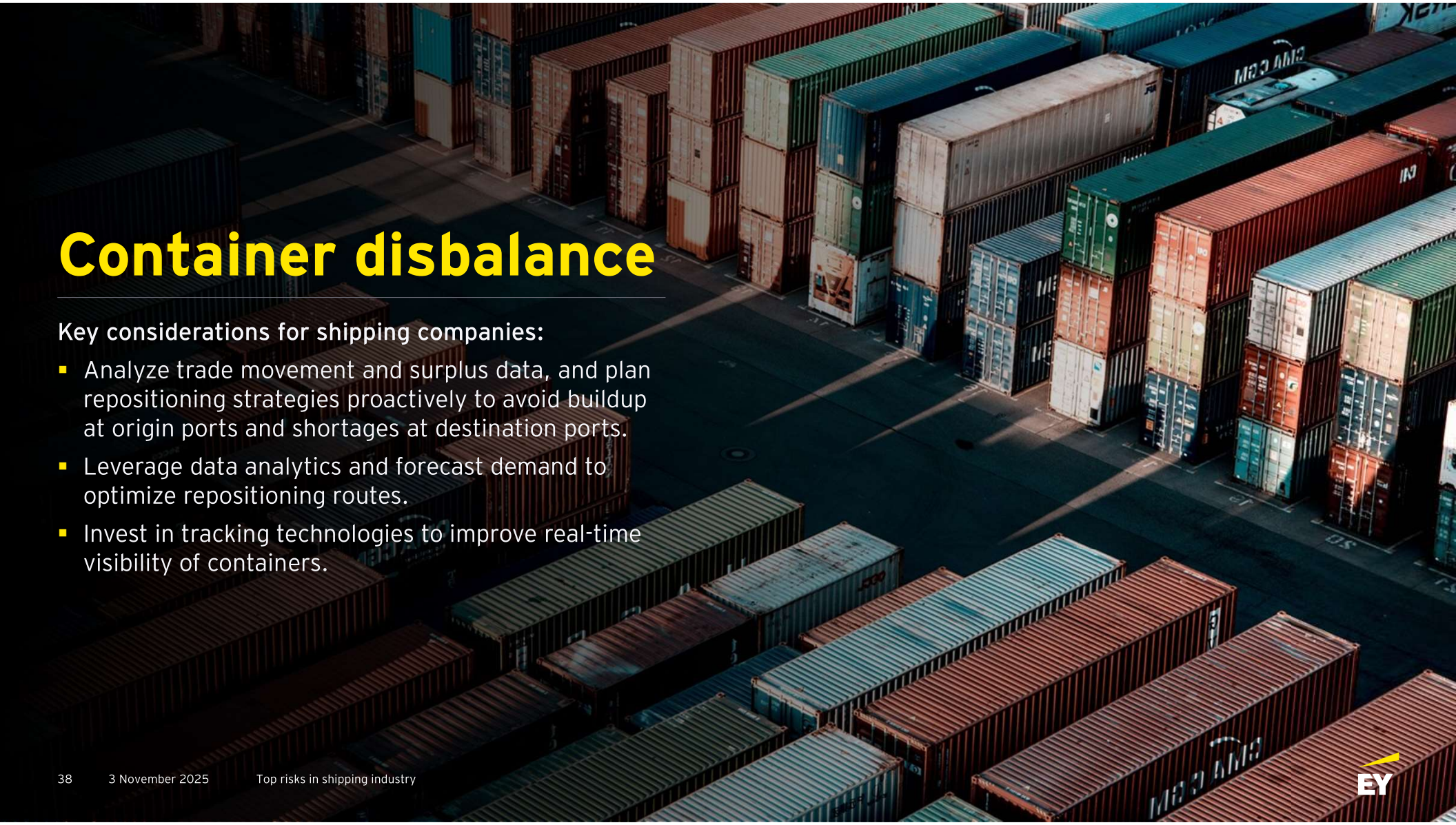
Estimated additional cost on business as a share of sales due to corruption in high-risk markets and over 5% in many other countries, as per the World Bank

## 50

Number of ports in Italy (from a total of 350 ports) impacted by the presence of organized crime as per a 2020 Italian study

## US$100m

Amount a leading container shipping company will spend on enhanced anti-smuggling measures from 2019 to 2025 on the back of recurring drug infiltration onboard its ships



# Container disbalance

**Key considerations for shipping companies:**

- Analyze trade movement and surplus data, and plan repositioning strategies proactively to avoid buildup at origin ports and shortages at destination ports.
- Leverage data analytics and forecast demand to optimize repositioning routes.
- Invest in tracking technologies to improve real-time visibility of containers.

# While extreme container shortage seen in 2020-22 has normalized, vulnerabilities are evolving into a series of regional and cyclical shortages ...

Factors or issues resulting in container disbalance

## Port congestion and labor shortage

- Strikes in Europe or the US in retaliation to port automation, or infrastructure damage (from storms or cyber attacks), delay ship loading and offloading, thus delaying access to containers.
- North American port congestion remains above pre-pandemic levels despite gradual improvement, while Asian ports continue to face congestion.
- European ports, especially Rotterdam and Antwerp, are heavily congested due to carrier alliance shifts and redirected cargo from US and China tariffs. Other alternative ports like Wilhelmshaven and Bremerhaven are also experiencing growing delays as carriers divert from key terminals.

**+85%**

Capacity operations at key terminals like Antwerp, Rotterdam and Hamburg leading to the imposition of restrictions on early container drop-offs, thus delaying container turnaround time

**36**

US ports affected in October 2024 due to a three-day dock worker strike in the US

**48-72 days**

Congestion delays in the key European ports (Rotterdam, Hamburg, Antwerp) in June and July 2025 amid growing summer demand for containers

## Trade imbalance causing container overcapacity

- The tariff conflict between US and China has lowered US exports to Asia, leading to surplus container stacks at US ports. Delays in returning empty containers to Asia are contributing to shortages in upcoming manufacturing hubs in China, India and Southeast Asia.
- Weak agricultural exports, reduced recyclable demand and manufacturing shifts have left fewer outbound loads to reuse containers in the US.
- Geopolitical tensions in the Middle East and Europe have been contributing factors in revised trade lanes. Transpacific blank sailings are rising rapidly as US tariff concessions are insufficient to restore demand.

**30%-40%**

Decrease in trade volume between US and China on the back of 145% tariff on Chinese goods

**46%**

Increase in empty container volume at Los Angeles port in 2025 compared with 2023 due to tariff measures impacting exports

Note:

# … especially on high-volume and politically sensitive trade routes

Factors or issues resulting in container disbalance

## Shortage due to route diversions from geopolitical disruption

- The Red Sea crisis is one of the major factors contributing to the container shortage. The Houthi militias, which have been attacking and hijacking vessels since last October, continue to be a threat. They have caused shipping companies to reroute from the Suez Canal and divert their cargo to the much longer passage around the Cape of Good Hope.
- This diversion means longer sailing times, during which those containers are stuck in a holding pattern until they reach the next port. Once those rerouted vessels finally reach another port, they face port congestion that further delays the unloading and emptying of those containers, pushing back delivery times.

**80%**

Reduction in operations of Suez Canal resulting in reroutes, adding 10–15 days to trips between Asia-Pacific and Europe, resulting in longer container cycle

## Shortage due to route diversions from climate disruption

- The ongoing Panama Canal drought has compelled the authority to restrict vessel draft and transit volumes, resulting in delays and increased shipping costs. Consequently, container availability has declined as ships carry less cargo, reroute or take longer journeys, disrupting global container flow.
- More intense typhoons, hurricanes and flooding in port cities delay cargo handling, further delaying container turnaround time.

**2,000**

Less containers onboarded by a European shipping company per vessel crossing the Panama Canal due to the weight restriction

# Risks associated with container disbalance for a shipping company

Piracy and organized crime threaten crew safety, disrupt operations, increase costs and harm reputation, posing significant challenges to the shipping industry.

**Risk to operations:**
- Delays in shipping cause late deliveries, inventory shortages and production halts.
- There is a rise in port congestion due to empty containers and associated sailings with reduced capacity.

**Risk to reputation:**
- Late shipments lead to lost sales, customer churn and damaged reputation.


**Risk to finance:**
- Higher leasing cost of containers in regions with shortage
- Underutilized sailing to maintain schedules
- As IMO introduces new compliance to report containers lost at sea, carrier's governance and reporting cost increasing along with the reimbursement of lost container liability cost

**Risk to pricing:**
- Spot freight rates can skyrocket due to high demand for limited containers (e.g., 3-4x higher).

## 51-75+ days

Estimated average container turnaround time in 2025 (36-51 days in 2023) at ports across US and Asia

## 200-2,000

Number of shipping containers lost at sea annually, resulting in an increase in liability cost

# Methodology

## About this report

### 01 Objective:

- Identify and analyze the top risks impacting shipping companies globally; focusing on operational, financial, regulatory and emerging threats

### 02 Research scope:

- Geographic coverage includes the global shipping industry with an emphasis on key trade regions (Asia-Pacific, Europe and Americas).
- Segments covered include container shipping, bulk carriers, tanker fleets and logistics providers.
- Risk dimensions encompass operational disruptions, compliance and regulatory challenges, financial exposure, and safety and reputational risk.

### 03 Data sources:

- Conducted an extensive review of secondary data from reputable and diverse sources, including:
  - Industry reports (Lloyd's List, BIMCO, Clarksons Research and Allianz etc.)
  - Regulatory frameworks and guidelines- International Maritime Organization (IMO) and International Chamber of Shipping (ICS)
  - News media, trade journals and expert whitepapers (Center for Energy and Environmental Policy Research (CEEPR), and DNV)

### 04 Analysis:

- Identified, grouped, and ranked risks based on frequency and severity reported across sources
- Highlighted emerging risks such as cybersecurity threats and environmental regulations
- Cross-checked findings across multiple sources to ensure accuracy and relevance

### 05 Limitations:

- Analysis limited to publicly available secondary information
- No primary data collection or interviews conducted
- Potential lag in capturing rapidly evolving risks due to dependence on published data
- Regional variations in risk impact may not be fully captured
- Risk impact across all shipping segments may not be fully captured

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